AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior listings, and all prior versions, of claims in the application.

LISTING OF CLAIMS:

1.   (Currently Amended) A medical imaging diagnostic apparatus that obtains image data from a blood vessel of an object being examined and measures the composite thickness of a tunica intima and a tunica media of the blood vessel, comprising:

brightness distribution acquisition means for acquiring a brightness distribution in the thickness direction of a blood vessel wall in a tomogram with regard to the blood vessel,

setting means for setting the tunica intima reference point and the tunica externa reference point based on the brightness distribution,

extraction means for extracting pixels, with respect to each pixel in a setting range including the tunica intima reference point or the tunica externa reference point, wherein the brightness belongs to the setting range, and

calculation means for calculating a ~~distance between a boundary in the blood vessel wall side in a region formed by the pixels being extracted based on the tunica intima reference point and a boundary in the lumen side in a region formed by the pixels being extracted based on the tunica externa reference point~~ first boundary in the lumen side between an intravascular lumen and an end of a region formed by the pixels being extracted, calculating a second boundary in the lumen side in a region formed by the pixels being extracted based on the tunica externa reference point,

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and calculating a distance between the first boundary and the second boundary by interpolating the composite thickness of the tunica intima and the tunica media.

2.   (Cancelled).

3.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, comprising means to make the threshold value variable.

4. – 5. (Cancelled).

6.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein:

the setting means sets a first region of interest in the position equivalent to the lumen, and sets a brightness difference between an average brightness within the first region of interest and the brightness of the tunica intima reference point as a threshold, and

the extraction means extracts the tunica intima reference point based on the set threshold.

7.   (Original) The medical imaging diagnostic apparatus according to claim 6, wherein the extraction means determines that the pixels having the brightness, when the absolute value of the brightness difference is smaller than the threshold value, are equivalent to a tunica intima.

8.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein a plurality of brightness distribution lines running in the diameter direction of the blood vessel over in the blood flow direction are obtained and the tunica intima reference point is set based on the average brightness distribution line of the obtained respective distribution lines.

9.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein a local maximal point closest to the lumen side, from the local maximal point previously set as the tunica intima reference point, is reset as a tunica intima reference point.

10.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein the tunica intima is obtained based on a color distribution of Doppler signals of reflected echo signals.

11.   (Original) The medical imaging diagnostic apparatus according to claim 10, wherein a binarization process is implemented, and the tunica intima is obtained based on the result of the binarization process.

12.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein the setting means sets the coordinate of a point having the maximum brightness value in relation to the brightness distribution in the thickness direction as a tunica externa reference point.

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13.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 12, wherein:

the setting means sets a second region of interest between the tunica intima reference point and the tunica externa reference point, and a brightness difference between an average brightness within the second region of interest and the brightness of the tunica externa reference point as the threshold value, and;

the extraction means extracts the tunica externa based on the set threshold value.

14.   (Original) The medical imaging diagnostic apparatus according to claim 1, comprising signal processing means having a filter for emphasizing the contour of the pixel region being extracted by the extraction means.

15.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, wherein:

the extracted pixels correspond to 3-dimensional image data, and

the extraction means extracts the tunica intima and the tunica externa on the 3-dimensional region, and measures the composite thickness of the tunica intima and a tunica media.

16.   (Original) The medical imaging diagnostic apparatus according to claim 1, comprising:

a probe for transmitting/receiving ultrasonic waves to/from an object being examined;

a transmission/reception unit for providing driving signals to the probe and receiving the reflected echo signals;

an image construction unit for reconstructing ultrasound images based on the reflected echo signals; and

a display unit for displaying the ultrasonic images,

wherein the image data is the ultrasound image data obtained by transmitting/receiving ultrasonic waves to/from the object.

17.　(Original)　The medical imaging diagnostic apparatus according to claim 16, wherein a blood vessel wall on the side near the probe is set as a near wall and a blood vessel wall on the side far from the probe as a far wall, the measured value of the near wall and far wall are compared to each other, and the greater value thereof is set as the measurement value of the cross section.

18.　(Previously Presented)　The medical imaging diagnostic apparatus according to claim 1, wherein the calculation means calculates the average value of the measured value in the region being extracted based on the extracted region.

19.　(Previously Presented)　The medical imaging diagnostic apparatus according to claim 1, comprising:

a display unit for displaying the calculated value,

wherein the calculating means calculates a maximum value or a minimum value in the extracted region, and

wherein the location of the maximum value or the minimum value in the extracted region is marked on the display unit.

20.   (Previously Presented) The medical imaging diagnostic apparatus according to claim 1, comprising:

display means for displaying the composite thickness of the tunica intima and tunica media of the blood vessel based on the distance.

21.   (Cancelled).

22.   (Cancelled).

23.   (Currently Amended) A medical imaging diagnostic apparatus comprising:

imaging means for obtaining image data related to a blood vessel of an object being examined;

Doppler imaging means for obtaining color Doppler image data related to the blood vessel;

brightness distribution acquisition means for acquiring the brightness distribution in the thickness direction of the blood vessel wall of the color Doppler image data;

setting means for setting the tunica intima reference point and the tunica externa reference point based on the brightness distribution;

extraction means for extracting the pixels, with respect to each pixel in the setting range including the tunica intima reference point or the tunica externa reference point, wherein the brightness belongs to the setting range; and

calculating means for calculating the distance between the boundary in the blood vessel wall side in the region formed by the pixels being extracted based on

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~~the tunica intima reference point and the boundary in the lumen side in the region formed by the pixels being extracted based on the tunica externa reference point~~ a first boundary in the lumen side between an intravascular lumen and an end of a region formed by the pixels being extracted, calculating a second boundary in the lumen side in a region formed by the pixels being extracted based on the tunica externa reference point, and calculating a distance between the first boundary and the second boundary by interpolating the composite thickness of the tunica intima and the tunica media.

24. (Currently Amended) A medical imaging diagnostic method comprising:

acquiring a brightness distribution in the thickness direction of a blood vessel wall in a tomogram with regard to the blood vessel,

setting a tunica intima reference point and a tunica externa reference point based on the brightness distribution,

extracting pixels, with respect to each pixel in a setting range including the tunica intima reference point or the tunica externa reference point, wherein the brightness belongs to the setting range, ~~and~~

calculating a ~~distance between a boundary in the blood vessel wall side in a region formed by the pixels being extracted based on the tunica intima reference point and a boundary in the lumen side in a region formed by the pixels being extracted based on the tunica externa reference point~~ first boundary in the lumen side between an intravascular lumen and an end of a region formed by the pixels being extracted,

calculating a second boundary in the lumen side in a region formed by the pixels being extracted based on the tunica externa reference point, and

calculating a distance between the first boundary and the second boundary by interpolating the composite thickness of the tunica intima and the tunica media.